ENTOMOLOGICAL NEWS

AND

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Prof. C. V. RILEY, M. A., Ph.D.

It is with profound regret that we publish these lines relating to the death of Prof. C. V. Riley, who was an Englishman by nativity, having been born in London in 1843. His boyhood was passed in the village of Walton, on the Thames. He subsequently attended schools in France and Germany. For six years he studied on the Continent of Europe, and this is the secret of his familiarity with the French and German languages, and of his power of speaking them with exceptional accuracy. Two passions characterized his boyhood—one for collecting insects, the other for drawing and painting.

The early loss of his father, and the care at school of a younger brother, developed in young Riley a self-reliance and sense of responsibility which gave a practical turn to his views, and convinced him that the classical education he was getting lacked many elements of utility. So, at the age of seventeen, he sailed for New York, where, after a seven weeks' voyage, he arrived with little means and "a stranger in a strange land." He went West and settled upon a farm in Illinois. Here he remained for four years, and acquired an experience of practical agriculture. About the time of his majority he commenced journalistic work in Chicago, where, in connection with his work on the paper, he gave special attention to botany and entomology. His writings,

especially on economic entomology, soon made him well and favorably known to the public.

In 1868 he accepted the office of State Entomologist of Missouri. For nine years he worked in this position. It was during this time the great grasshopper plague of Kansas and Missouri occurred, and his services in connection therewith as Chief of the Entomological Commission of the United States were of the highest value.

In the Spring of 1878 he was tendered the position of Entotomologist to the Department of Agriculture, which he accepted, but shortly afterwards relinquished, retaining, however, his position at the head of the Entomological Commission, and continuing his work in the service of the Government. In 1881 the Division of Entomology in the Department of Agriculture was formed, and Professor Riley was placed at its head—a position which he continued to occupy until last year, when, on account of impaired health, he tendered his resignation.

Professor Riley has given to the National Museum at Washington, his private collection of American insects, containing more than 20,000 species, and represented by 115,000 pinned specimens, and much additional material unpinned and in alcohol. Professor Riley was a member of many scientific and philosophical societies of this country and Europe, and has received many medals and diplomas of honor from foreign governments. In 1889 he received the insignia of Knight of the Legion of Honor. At this time the French Minister of Agriculture wrote him a personal letter acknowledging the distinguished and valuable services which he had rendered to French agriculture.

HOW HE WAS INJURED.

Prof. Riley left his residence at 2135 Wyoming Avenue, on Columbia Heights, a few minutes after nine o'clock, on September 14th, and, mounting his bicycle, started for the city by the way of the Columbia Road and the extension of Connecticut Avenue. There is a steep hill between California Avenue and Boundary Street, and those who saw Professor Riley coming down this grade noticed that he was riding more rapidly than was his custom. When he reached the flat pavement at Connecticut Avenue and S Street, whose intersection is but a few feet from Florida Avenue, the front wheel of the bicycle struck a piece of granite that was

lying on the concrete, having apparently dropped from one of the wagons hauling broken stone for the base of the asphalt pavement being laid in that vicinity.

When the wheel came in contact with the obstruction it turned directly at right angles and Professor Riley was thrown with great violence, head downward, on the pavement. His feet seemed to get tangled in the pedals and the machine fell on top of him. He was apparently lifeless, and a stream of blood gushing from his ear had already formed a pool on the pavement. The injured man was lifted up and laid on the parking, and in a few minutes several physicians were present. The observable injuries of Professor Riley consisted of a deep gash over the left eye, a cut across his nose and the laceration of every knuckle on either hand, showing that his grasp on the handle bar of his machine had not relaxed, so quickly had the catastrophe happened. Death took place shortly after midnight on September 15th.

The work done by Professor Riley is too well known to entomologists to require a detailed account, and we are sorry, indeed, that his life was cut short at a period when he would have had much more time to devote to research, having given up executive and routine work in the Department of Agriculture.

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Some Entomological Notes from Montgomery County, Virginia.

By ELLISON A. SMYTH, JR., Blacksburg, Va.

Inasmuch as *Argynnis bellona* has been given a hitherto Northern range, it will be of interest to note its capture in this southwestern part of Virginia; two specimens, both males, were captured here in the latter part of August, 1894; both were taken in a wet, boggy place in a little valley, and were the only ones seen, the only other Argynnidæ taken or seen being *Arg. cybele*, *diana* and *Euptoieta claudia*. Three specimens of *Phyciodes nycteis* were also taken here in July, and in June I saw one *Melitæa phæton* on the side of Bald Knob, about 4000 feet above sea-level, but having no net, failed to secure it.

This Spring (April 13, 1895) I saw my first *Thecla damon*, on *Juniperus virginica*, and it has been since, and is now (May 8), very abundant in both sexes, every red cedar having a few flitting about their top branches. They seem also to fancy the bloom

of *Rhus aromatica*, and I catch them repeatedly at that, though I have not yet seen them near *Cercis*, also in full bloom, right at hand. The eggs are laid, as described by Mr. Scudder, on the very tips of the cedar twigs, and I have also noticed a great number of ichneumon fly (*Pimpla*, I think) diligently searching among the ends of twigs, so that I think it may be a parasite of *damon*, though as yet I have been unable to verify the suspicion.

In early April a negro brought in eleven imagos of *Dynastes tityus*, six males and five females, taken from the decayed base of a recently felled white oak stump; from his description there must have been many larvæ and pupæ there also, which he said his chickens had destroyed. As soon as possible Prof. Alwood and myself visited the place; the stump was much rotted on one side, and we removed about a bushel of the excrement of the larvæ; we were too late, however, finding only one male and one female imago, the remains of a pupa skin, and at last, by very diligent search and by following each decayed rootlet to its base, we secured two of the large, remarkable larvæ, which are still in captivity, in rotting wood supplied them in the breeding-case.

Papilio glaucus is the only female form of *turnus* that I have seen here, and they are smaller than those captured on the seaboard of South Carolina. *Eudamus cellus* is occasionally taken in the watered rocky ravines where the wild catnip covers the ground.

The males of *Argynnis diana* are flying in early June, and the females appear about the last of July, being in full force in August, at which times the males are much worn, and it is then difficult to secure good specimens of the males. I have invariably found the males more difficult to catch than the females; at the first alarm they make for the forests on the hillsides and are lost; in their early appearance in June they are mostly to be seen on the wing, crossing and following the mountain roads, and are then difficult to catch; later both sexes are attracted by thistle in bloom, and also by the purple *Eupatorium*, but their favorite plant is the iron weed, *Vernonia angustifolia*, and its allies; so much is this so that we used to call this "Diana Weed," and in driving through the mountains always stopped whenever we saw a patch of it. It is enough to make the heart jump to come across a fine head of *Vernonia* and see two or three of the blue females quietly feeding, their blue color contrasting well with the

rich purple of *Vernonia;* it is better to see only one *diana* on a cluster, however, for if there are more, the effort to secure all at a stroke generally results in the escape of all, and a *diana* once alarmed is not always easy to approach. I have collected *diana* along the Blue Ridge, but in my experience their stronghold is near Brevard, in Transylvania County, North Carolina, and the country around the Davidson River and head-waters of the French Broad. In the valleys near Buck Forest Hotel and Cedar Mountain and Cashar's Valley (near Brevard), wherever patches of *Vernonia* are seen, and even on the dahlias in front of the mountaineer's cottage, can be found, in August and September, *dianas* enough to satisfy the most ardent collector.

Colias eurytheme, so characteristic on the coast and midlands of South Carolina (in fact, there, being the only *Colias*, save *cæsonia*) is not seen here at all, being replaced by *philodice.*

And lastly, among the Sphingidæ, the great brown *rustica* is occasionally taken at the *Datura* blossoms, though not as plentifully as in Charleston County, South Carolina. I am now anxiously awaiting news from a pupa of *Citheronia sepulchralis* captured on *Pinus mitis* last September.

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RHOPALOCERA OF TENNESSEE.

By William Osburn.

During the Summer of 1894, while making a study of the insect fauna of Nashville and vicinity, considerable attention was given to the diurnals. As far as I am aware, no list of the butterflies of Tennessee has ever been published. The subjoined list, representing seventy species, is not exhaustive, as but a small section of the State has been explored, an area such as would be described by a radius extending about fifteen miles from Nashville. The season was unfavorable, owing to the excessively cold spell in May and the unusual drought through most of the Summer. Observations extending over several seasons and including the eastern and western portions of the State will probably increase the list to one hundred species or more. In Entomological News for March, 1893, Dr. Henry Skinner reports *Neonympha canthus*, *chrysophanus*, *hypophlæus* and *Grapta faunus* as found in North Carolina. In the April issue for 1894,

Rev. John Davis reports *Grapta progne*, *Pamphila accius*, *Phyciodes phaon*, *Lycæna alce* and *Pyrgus syrichthus*, as taken in Arkansas, and in the "Canadian Entomologist" for October, 1894, Hattie H. Warner includes in her list of Kentucky butterflies *Melitæa phæton*, *Satyrus alope*, *Pamphila peckius* and *Nisoniades juvenalis*.

The above and other species of contiguous States will doubtless be added to our fauna upon more extended research.

The data appended to each species have been confirmed, in most cases, by personal observations. The months are given to indicate when specimens were actually observed. The number of specimens observed furnishes the data upon which the abundance or scarcity of each species is based. It is understood, however, that the rarity of a species is not always indicated by the number of imagoes actually seen. Last Fall I succeeded in securing a large number of caterpillars of *Pyrameis cardui*, but not a single imago was seen. Further, a species scarce in one season may be abundant in another. Last Fall *Agraulis vanillæ* was decidedly rare, while in the Autumn of 1893, it was unusually abundant.

For assistance in determining doubtful specimens I am under many obligations to Dr. Henry Skinner, of Philadelphia, to whom were submitted examples of every species except three. Appended is the list:

1. *Danais archippus* Fab.—Abundant; March to November. Three broods; hibernates in imago state. Food-plant, milkweed.

2. *Agraulis vanillæ* Linn.—Rare; August to November. Two broods; the imago hibernates, and possibly the chrysalis; one specimen emerged January 15th. Food-plant, passion vine.

3. *Euptoieta claudia* Cram.—Abundant; March to November. Three broods; the imago hibernates. Food-plant, passion vine.

4. *Argynnis diana* Cram.—Rare. Prof. G. H. French writes: "I have received it from Chattanooga, Tenn." Probably two broods; the pupa probably hibernates. Food-plant, violets.

5. *Argynnis cybele* Fabr.—Rare; June to October. Two broods; the pupa probably hibernates. Food-plant, violets.

6. *Argynnis aphrodite* Fabr.—Prof. G. H. French, in his "Butterflies of Eastern United States," reports it from Tennessee. Two broods; probably hibernates in the pupa state. Food-plant, violets.

7. *Phyciodes nycteis* Db.-Hew.—Rare; June to August. Probably two broods; probably hibernates in the larva state. Food-plants: aster, sunflower, etc.

8. *Phyciodes tharos* Dru.—Abundant; probably three broods; the larva hibernates. Food-plant, aster. Seasonal forms *marcia* and *morpheus* both abundant.

9. *Grapta interrogationis* Fabr.—Common; March to November; the imago hibernates. Food-plants: hackberry, elm and hop-vine. Seasonal forms *fabricii* and *umbrosa* were reared from the same brood of larvæ.

10. *G. comma* Harr.—Rare; June and August. Two broods; the imago hibernates. Food-plant, hackberry.

11. *Vanessa antiopa* Linn.—Rare; two specimens in June. Two broods; the imago hibernates. Food plants: willow, elm, poplar.

12. *Pyrameis atalanta* Linn.—Common; May to October. Three broods; the imago probably hibernates. Food-plants: nettle and hop.

13. *P. huntera* Fabr.—Common; June to November. Three broods; the imago hibernates. Food-plants: burdock, sunflower, etc.

14. *P. cardui* Linn.—Common; September to November. Probably three broods; the imago hibernates. Food-plant, thistle.

15. *Junonia cænia* Hüb.—Somewhat common; July to November. Probably three broods; the imago hibernates. Food-plants: snapdragon and plantain.

16. *Limenitis ursula* Fabr.—Rare; July and August. Probably two broods; probably hibernates in the pupa state. Food-plants: willow, cherry, etc.

17. *L. disippus* Gdt.—Somewhat common; August and September. Two broods; hibernates in the larva state, and possibly the chrysalis. Food-plant, willow. One specimen of var. *floridensis* was taken August 22d.

18. *Apatura celtis* Bd.-Lec.—Common; July to September. Two broods, possibly three; the larva hibernates. Food-plant, hackberry.

19. *A. clyton* Bd.-Lec.—Rare; June to October. Two broods; the larva hibernates. Food-plant, hackberry. Seasonal forms *proserpina* and *ocellata* were both observed.

20. *Anæa andria* Scud.—Common; April to November. Two broods, possibly three; the imago hibernates. Food-plant, *Croton capitatum*.

21. *Debis portlandia* Fabr.—Rare; two specimens in July. Probably two broods; the larva probably hibernates. Food-plant, grass.

22. *Neonympha gemma* Hüb.—Common in dense woods July to September. Three broods; the larva probably hibernates. Food-plant, grass.

23. *N. eurytris* Fabr.—Common; May to July. One brood, possibly two; the larva hibernates. Food-plant, grass.

24. *N. sosybius* Fabr.—Rare; July to September. Two broods; the larva hibernates. Food-plant, grass.

25. *Libythea bachmani* Kirtl.—Abundant; June to October. Two broods, possibly three; the imago probably hibernates, early specimens being worn. Food-plant, hackberry.

(To be continued.)

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SPHERULARIA BOMBI IN AMERICA.

An animal in which Prolapsus vaginæ is normal.

By CH. WARDELL STILES, Ph. D.

Prof. John B. Smith recently sent me some parasites (*Spherularia bombi*) from the body-cavity of the Humble-Bee for determination and requested me to write a short account of them for publication in ENTOMOLOGICAL NEWS.* I acceed to the request all the more willingly as, so far as I have been able to find, this curious parasite has never been described in American literature, although several records of the presence of a parasite in the Humble Bee occur in American journals which undoubtedly refer to this particular species.

The parasite in question is one of those curious forms in which, what frequently occurs to a moderate degree as a pathological process in higher animals, here takes place to an enormous extent as the normal condition of affairs; it is further an extremely interesting form, as a particular set of organs normally undergoes an hypertrophy entirely out of proportion to its original size, or in fact to the size of the original organism. A third point in connection with the worm is that it represents one of those peculiar cases of parasitism in which only the female sex lives a parasitic life.

* I found specimens in material collected by my students in female *Bombus pennsylvanicus*, *B. fervidus* and *B. consimilis*.

The worm was discovered, in 1838, by Léon Dufour, who was inclined to look upon it as an insect-larva. Von Siebold, however, afterwards showed that true nematodes develop from the egg of this monstrosity, and its systematic position was thus made somewhat more clear. The worm was then observed by various workers, but no clear explanation of the paradoxical organism could be given. Lubbock afterwards noticed that an almost microscopic nematode was frequently found attached near one end of the parasitic structure, and Schneider suggested that the larger tube-like structure was an organ which had become more or less independent of the original body. Prof. Rudolf Leuckart* (1887), to whom science owes the solution of so many of the riddles which confront the helminthologist, finally made a very thorough study of the worm, together with another worm, showing the same tendency to a somewhat lesser degree, and succeeded in clearing up this gynecological mystery.

The following is an abridged account of the parasite, and those who desire to examine more closely into the details of the subject are referred to Leuckart's magnificent monograph.

The males and females of *Spherularia bombi* are almost microscopic; they live in moist earth and, although their intestinal system is not of such a structure as to allow of their taking food, they may live for months, probably using the reserve material stored up during their inter-uterine existence. Their reproductive organs come to functional development and the animals copulate; after copulation the males die, the females alone living to represent the species.

The females then watch their chance to obtain a "widow's home" for the Winter; they enter the female Humble-Bee which is about to hibernate, and in the body-cavity of this insect they continue their curious development. The vagina gradually evaginates through the vulva, taking with it the entire sexual apparatus, and the greater part of the intestine; this evaginated portion develops to an enormous extent, attaining in many cases 20 mm. in length by 1 mm. in breadth, but remains attached for a long time to the almost microscopic body of the original worm at the vulva, or possibly it would be better to say that the body of the female remains attached at the vulva to its evaginated

* 1887—Neue Beitrage zur Kenntniss des Banes u. d. Lebensgeschichte der Nematoden; Abh. d. math.-phys. Cl. Kgl. Sachs. Ges. d. Wiss. pp. 565-704, 3 Taf.

genitalia! Finally, the body of the worm falls, and the genitalia continue to live an independent existence, nourished by osmosis in the body-cavity of the bee. It is estimated that the genitalia have hypertrophied 60,000 times their natural size, and have become 15.000 to 20,000 times the size of the original female.

In the meantime numerous embryos have developed within the uterus; these embryos fall into the body-cavity of the bee and become free, probably boring through the intestinal wall of the host and being passed, or in some cases by the death and decay of the bee. Upon becoming free, they develop their sexual organs and copulate, the males die and the females await the opportunity of obtaining a Winter home in the next Winter's female humble-bees.

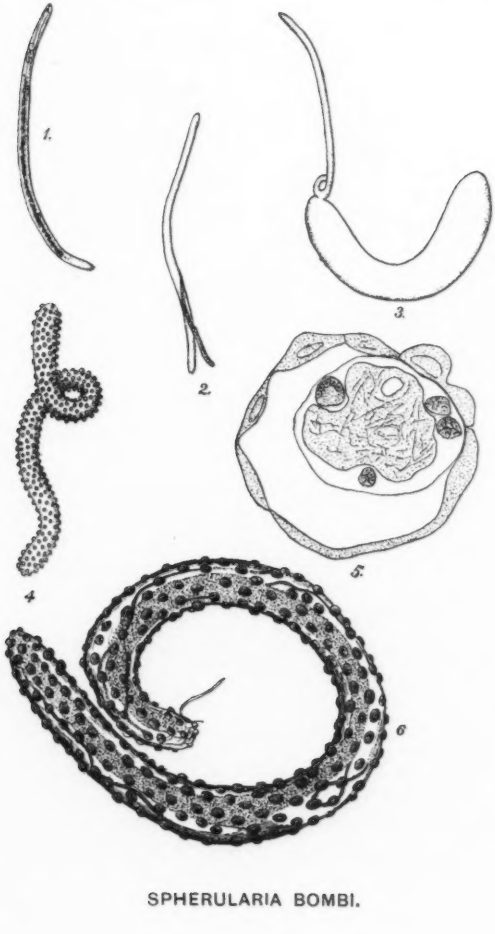
It is almost needless to add that the presence of these parasites, especially in large numbers, brings about an atrophy of some of the organs, more particularly of the internal genitalia of the host, and this causes the female bees to remain more or less sterile.

The parasite described (*Spherularia bombi*) does not represent the only species of nematode in which we find these gynecological conditions. Leuckart has described a parasite (*Atractonema gibbosum*) from the body-cavity of the larva and pupa of a small *Cecidomya* which has a similar life-history, but in which the *prolapsus vaginæ* occurs to a more moderate degree. I have also frequently noticed *prolapsus vaginæ* in the genus *Oxyuris* (pin-worms) more particularly in *O. ambigua* Rud., 1819, found in rabbits (*Lepus cuniculus*). This condition, which is not infrequently noticed in the worms found in the intestines, can be brought about artificially by suddenly immersing the parasite in cold water.

EXPLANATION OF PLATE XI.

Fig. 1.—Normal young worm.
" 2.—Female with beginning evagination of the vagina.
" 3.—The evaginated vagina has grown larger than the worm and contains the other genital organs and the intestine.
" 4.—*Spherularia bombi* as usually found. The body of the worm has fallen.
" 5 —Transverse section through fig. 4.
Figs. 1-5 are taken from one of my old Leipzig sketch-books, and figs. 2, and 5 at least, and possibly also fig. 3 were made from Leuckart's original preparations.
Fig. 6.—*S. bombi* with the body of the worm still attached. After Lubbock, from Cobbold.

All figures greatly enlarged.



SPHERULARIA BOMBI.

List of Butterflies taken in the vicinity of Ft. Klamath, Oreg.

By B. L. CUNNINGHAM.

Papilio zolicaon
" eurymedon
" rutulus
Parnassius clodius
Neophasia menapia
Pieris occidentalis
" beckerii
Anthocharis stella
" sara reakirtii
" ausoniades
Colias eurytheme
" sp. ?
Danais archippus
Argynnis leto
" monticola
" eurynome
" epithore
" arge
Melitæa colon
" rubicunda
" gabbii
Phyciodes pratensis
Grapta, comma var.
" satyrus
" zephyrus
Vanessa antiopa
" californica
" milbertii
Pyrameis atlanta
" huntera
" caryæ
Limenitis lorquini
Heterochroa californica
Cœnonympha inorata
Satyrus ariane
" œtus
" charon
Chionobas californica
Thecla californica
" spinetorum
" iroides
" behrii
" eryphon
" dumetorum
Chrysophanus editha
" mariposa
" helloides
" cupreus
" zercæ
Lycæna sæpiolus
" pheres
" antiacis
" sagittigera
" glaucon
" shasta
" melissa
" anna
Pamphila vestris
" sylvanoides
Pyrgus tesselata
" cæspitalis
Nisoniades persius
Eudamus æmilea

This list is not complete, but is as nearly so as I am now able to make it.

I think that *Papilio oregonia* is to be found within a few miles of here, at least within twenty, on "Modoc Point," a spur of the east Cascade Range of Mountains which run down on the east side of Upper Klamath Lake.

THE HABITS OF CALIFORNIAN BEES AND WASPS.

Anthidium emarginatum, its Life-history and Parasites.

By ANSTRUTHER DAVIDSON, M. D., Los Angeles, Cal.

It is doubtful if they ever dig the hole wherein they nest. I find them in so many different places that I incline to believe they occupy whatsoever hole they find convenient. I have found them most frequently in short tunnels in the bare adobe banks, or in the soft sandstone rocks that form the walls of excavations and cuttings. These tunnels were originally the nesting sites of a species of *Anthophora*. While this may be considered the normal nesting place of this species of *Anthidium*, they are disposed to occupy any medium-sized hole, either in the ground or in a hollow stem; one built in the key-hole of a door. The hole or tunnel chosen is lined with the wool gathered from the foliage of *Gnaphalium chilense*, and *G. microcephalum*, our western species of everlasting. In this the pollen mass and egg destined to form each cell are deposited, the interval between each mass being composed of the same woolly material firmly compacted. The cells in each hole seem to be regulated solely by its depth and vary accordingly from one to seven. Usually the holes are not more than a few inches deep, but no matter what the depth she almost invariably fills the cavity to the top with this flocculent vegetable down, firmly compacted together. The object of this is doubtless to prevent the rain soaking into the cavity and endangering the vitality of the larvæ, for which purpose it is most admirably adapted being impervious to, and non-absorbent of water.

The eggs are deposited in the usual manner and the larvæ about the end of August spin their cocoons. These when stripped of the woolly covering and the larval excrement adhering to it, present a smooth chestnut-colored surface. They are oblong in shape with blunt ends, and average 6 to 8 lines in length and 3 to 4 in width. On the one end is a small mammillary projection showing on the outside a hollow tip. The cocoon on section appears to be slightly thinner towards the mammillated end, and is smooth and glossy silvery internally except opposite the tubercule, where the individual threads are more distinct. The papilla on section shows the external part hollow and coriaceous in texture, the internal lining is here less

dense than that of the remainder of the cell and the interval between is an open meshwork of fibres. Whether or not this is to be considered as an air hole or breathing tube, it is doubtless analogous to the structures described by Prof. Riley as occurring in the *Sphecius speciosus* ("Insect Life" vol. iv, 252).

Its capability to supply air must, from the nature of the interior lining, be limited indeed, yet probably this is its purpose. The remainder of the cell with its surfaces polished externally and internally seems totally impervious to air. Why the air-holes in the cocoon of *Sphecius speciosus* should be made to project above the surface I do not understand, but the necessity of their so doing in this instance is apparent on superficial examination. As I have already observed, the cocoons are covered over with a layer of excrementitious matter, so that unless the air-hole projected above the surface it too would become cemented over in the process of spinning the cocoon. The air-hole is always on the end nearest the outlet, and the larva always lies with its head toward that end.

Of the forty specimens of cells in my collection that appear on superficial examination to be identical, and were presumably built by this *Anthidium*, five prove to be constructed by an *Anthidium* of a larger size and brighter color than the one under review. Among the remainder were seven cells of the typical shape, but of smaller size, and thicker walled, the increased thickness being due to another layer uniformly disposed internally and forming in reality a double walled cocoon the interior of which was less glossy than the type.* These larvæ on hatching proved to be of an entirely different species, and have been identified for me (doubtfully, I fear) as *Megachile brevis*, Say.

Nine of the cells were occupied by parasites Of these

Leucospis affinis occupied three.

Photopsis unicolor Cress. occupied three.

Sphærophthalma sp.? occupied one.

Monodontomerus montivagus Ashm. occupied one.

Physocephalus affinis Will. occupied one.

This last was found in the cell adjoining that which contained the *Sphærophthalma*, both of which were discovered in a nest constructed in the empty retreat of a trap-door spider.

* This species build their nests in June and July, and after spinning their cocoons remain in the larval state throughout the Winter, pupating shortly before making their exit in the first week of June.

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), in charge of the joint publication committees of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, and the American Entomological Society. It will contain not less than 300 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

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☞ All remittances should be addressed to E. T. Cresson, Treasurer, P. O. Box 248, Philadelphia, Pa.; all other communications to the Editors of Entomological News, Academy of Natural Sciences, Logan Square, Philadelphia, Pa.

Philadelphia, Pa., October, 1895.

A NEW DEPARTURE.

With this number of the News we will inaugurate a new departure in relation to the Economic Department of the journal. This department, as in the past, will be under the charge of Prof. John B. Smith, Sc.D., of New Brunswick, N. J. The principal change will be in the fact that papers for the department are solicited, and should be sent direct to the editor, Prof. Smith. If necessary we will increase the amount of space devoted to economic entomology, and do all in our power to make it a success. We fully appreciate its importance as a study, and see clearly that it has a great future; we also wish to make the News as valuable as possible to the general public, and hope many patrons will recommend and introduce it among their friends interested in agriculture and horticulture. We hope to see this department grow into one of great usefulness, as it appeals more directly to the interests of the people at large who are all more or less interested in entomology as far as it touches their own comfort or interests. Prof. Smith is an entomologist who has a wonderful knowledge of practical work in this line, and under his able management the department can't help but flourish. We hope to see an abundance of material for the new section of the journal, which should be practical and popular, and not too technical.

A number of the members of the Feldman Social, including Prof. John B. Smith, will be the guests of Mr. Theo. E. Schmitz, at Arlington Beach, Cape May County, N. J., on Saturday September 21st. To collecting will be added the many enjoyments of the sea-shore.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

The work of *Scolytus 4-spinosus* in hickory (from "Garden and Forest"). Some remarks on the species illustrated by the cut will appear in the next number; see illustration.

Meeting of the Association of Economic Entomologists.—The seventh annual meeting of this body was held at Springfield, Mass., August 27th and 28th, President, J. B. Smith in the chair, and proved to be a very enjoyable affair to those in attendance. In point of numbers the gathering left something to be desired, a large number of Western and Northern representatives being prevented from attending by the distance, while the East was, as usual, poorly represented. The program, however, was of a decidedly interesting nature, productive of much discussion, and although long sessions were held each day, it was impossible to read all the papers. Some of those presented by members not in attendance were, therefore, read by title only.

The President's address consisted largely of general considerations and suggestions, calling attention to a number of features that needed consideration by the economic entomologist. Special attention was called to the fact that in many cases insecticides did not act in the same manner in all parts of the country, or that insects in some regions proved much more resistant than in others, and it was suggested that adverse criticism be withheld until we had a thorough knowledge of all the facts of the case. The subject of keeping up with the economic publications of the day was another of the topics, and it was suggested that all the members of the Association send to every other member a copy of all official publications at least, and that they send to some central point, say ENTOMOLOGICAL NEWS, at intervals of from one to three months, a list of all newspaper and magazine publications which are not likely to come into the hands of the busy worker. In this way it will be easy to keep up with what has been done by others, without the necessity of looking over carefully all the agricultural papers and the entomological department of local journals. The question of legislation against insect pests was touched upon, and the desirability of some central authority competent to deal with imported insects when they are first introduced was strongly urged. The subject of introductions of foreign insects was briefly touched upon, and especial reference was made to the Gypsy Moth, the Pear Midge, and the Sinuate Pear Borer—all of them eastern pests. The desirability of co-operation among entomologists was further referred too, and attention was called to the report of the Committee which was made in 1894, and left to be acted upon by the meeting of 1895.

In the business session the report of this Committee on co-operation was brought up for consideration, but owing to the length of the program was laid over for the last session, and was finally left without action.

Mr. C. L. Marlatt read "Some Notes on Insecticides," among which tests of the combined kerosene and water mixture were most interesting and instructive. It was found that the machinery devised for this purpose still left much to be desired, and that it was not possible to rely with certainty upon a uniform proportion of the kerosene and water. The effectiveness of the mixture, however, was commended. On the same subject was a paper by Mr. H. E. Weed, entitled "Experiments with the Knapsack Kerosene Attachment." In this he detailed the results of a spray of the mixed kerosene and water as compared with the emulsion, and it is found that the emulsion is, on the whole, a little more active; but that the water mixture is just as effective when a somewhat larger percentage of kerosene is used, and is a little injurious to foliage. The paper does not deal with the mechanical difficulties, but rather with the effectiveness of the kerosene and water not first emulsified. Yet, upon the same subject was a paper by Mr. Clarence M. Weed, which dealt with the mechanical difficulties, and suggested as a solution a narrow kerosene receptacle of the same heighth as the main tank, and containing just exactly the necessary proportion of kerosene to the water. This kept water and kerosene on the same level constantly, and in his experience the proportion in the spray was then also constant.

A paper by Mr. Aldrich, entitled "Spraying without a Pump," was then read and illustrated by means of blackboard sketches. The device is adapted only where water pressure is available, and indicates a method of attaching a receptacle with poison in such a way that the stream of water will carry a definite proportion with it during the process of spraying. In the discussion which ensued upon this, a number of devices of the same general character were described, and there was a somewhat general discussion as to the possibility of getting a receptacle from which the distribution of poison would be uniform.

Continuing the same subject of insecticides, Mr. J. B. Smith read a paper on "The uses of Insect Lime," in which he described a series of experiments made with an imported preparation known as "Raupenleim," and an American substitute which he had secured, and which is called "Dendrolene." He finds that it is practical to use these materials in the orchard for certain purposes, and that protection against many different kinds of borers can be obtained by an intelligent use of one or the other of these materials. Both are said to be petroleum products in the nature of an exceedingly impure vaseline. In the course of the discussion Mr. Davis reported good success with this material against the Canker worm in Michigan, while Prof. Fernald mentioned a somewhat less favorable result against the same insect in Massachusetts, due in this case to the fact that the cold of early morning chilled the preparation, so as to make it possible to be traversed by the insects. He also described the uses

that had been made by the Gypsy Moth Committee of this substance, and while its effectiveness was admitted it was pointed out that where the insects were exceedingly numerous they would finally form a bridge of dead bodies over which others safely crossed. Mr. Forbush, in speaking of the toughness of these insects, stated that he had seen caterpillars work their way through a ring of the insect lime and continue their journey above it apparently none the worse.

Mr. E. B. Southwick spoke of "A City Entomologist and Insecticides," in which he called attention to the trials and tribulations of a man in public position where there is a constant demand by enthusiasts and inventors for the trial of "unfailing" remedies.

In the course of this discussion it was plainly shown that in the matter of using insecticides it was not always safe to rely upon results obtained by others, though often those results could not be questioned. That it was yet more unsafe to conclude from our experiments on one species what the action of the same material would be upon another species. In other words we are practically compelled to experiment with every species that becomes troublesome, and the results in one State are not necessarily the same as those obtainable in another State under apparently similar conditions.

The second day's session began with a paper by Mr. L. O. Howard on "Some Shade-tree Insects of Springfield and other New England towns." Of these insects the Elm Leaf Beetle received the greatest consideration, a careful statement of the spread of this insect in the Eastern States being given and also a record of what had been done in the direction of checking or exterminating the pest. The most practical methods of dealing with the insects were referred too, and recommendations for handling the insects in large cities or on large trees were made. The essay was of popular interest, and was published almost in full in the local papers. Another species that was referred to as having become especially abundant during the present season was *Pseudococcus aceris*, which was doing considerable injury to maples in some cities, including Springfield.

Mr. Marlatt followed with a paper on "The Elm Leaf Beetle in Washington," in which he described the measures taken during the present season on the grounds of the Department of Agriculture—measures which were perfectly successful in protecting the trees. A point upon which stress was laid was the necessity of a very early spraying in order to prevent injury by the beetles, and furthermore it was noted that in spite of the number of broods in Washington the essential effort must be made against the first, and if protection is secured against that the balance of the season is less likely to prove troublesome. To a certain extent the conclusions reached in the New Jersey Report for 1894 were confirmed, and it seems to be largely a matter of an abundance of fresh food as to whether the beetles will or will not lay eggs for subsequent larvæ.

Dr. Lintner followed with another paper upon "The Elm Leaf Beetle

in Albany." He has discovered them during the present year in very great numbers in the center of the city, and has ascertained that they have been in the more southern parts for at least three years. Dr. Lintner very strongly urges the destruction of the pupæ at and near the base of the tree, and claims that in Albany it is the second brood that does the greatest injury. A very interesting discussion on this subject followed, in which Messrs. Riley, Fernald, Southwick, Smith and others took part. The general conclusion was, that it was simply a matter of mechanical work, and that there was no other difficulty in the way of successfully dealing with these insects. Mr. Smith confimed Mr. Marlatt's suggestions that the early sprayings were the most important, and that if the leaves could be protected from injury to such an extent that they would not be shed and that the tree would not be induced to throw out a second foliage, they would become so hard and so little to the taste of the insects, that the beetles would go into hibernation rather than lay eggs for a second brood; and if they did oviposit and larvæ hatched, a large propôrtion of them would die, or would grow so slowly, that the injury would be imperceptible.

A great deal of public interest was manifested in this meeting, and the attendance outside of regular members was large. Prof. Fernald presented a statement concerning "The Gypsy Moth," which included a brief history of the introduction of the insect, its spread, the organization for its proposed destruction, and an account of the work accomplished. A very remarkable fact which developed in the course of the experiments was that the caterpillars of this insect were able to devour an enôrmous quantity of arsenic without apparent injury, so that spraying, except for the destruction of the very young larvæ, was practically out of the question. The result was that more attention had been paid to the mechanical destruction of the insects, and very largely to their destruction in the egg stage. The future of the way was discussed and the propriety of congressional aid was referred to. Messrs. Forbush and Kirkland, in charge of the practical work of the Committee, followed, with some statements as to the character of the work that had been done, and as to experiments made in the direction of securing insecticides which would act upon these caterpillars without injuring the foliage; thus far nothing that could be satisfactorily recommended had been found. The arsenate of lead, useful though it is against other insects, is practically useless against the Gypsy Moth caterpillar, except in excessively large quantities. Dr. Riley made a brief statement concerning the part taken by him in the early history of the work, the recommendations made when he was first consulted, and the criticisms which he found it desirable to make upon the way the work was carried on at times. He very strongly commended, however, the character of the work that was now being done, and suggested that it was in line, to a large degree, with the recommendations originally made by him.

Mr. E. B. Southwick read a paper upon "Economic Entomological work in the Parks of New York City," in which he described the apparatus of his department and the manner in which the work was done, and

some of the measures which he had found most satisfactory in treating those insects that were most troublesome in the parks. He finds that there is very little difficulty in controlling the insects, provided a sufficient force and a sufficient quantity of apparatus is placed at the disposal of the entomologist.

Dr. Lintner read a paper upon "Lina scripta," and described the injury done by the beetles and its larvæ on basket willow in Onondaga County, N. Y. The most practical methods of preventing injury thus far have been mechanical, and consisted in a sort of modification of the hooper dozer, adopted for the particular purpose, but a considerable amount of injury seems to be done each year, for which no remedy is yet at hand.

Mr. G. C. Davis read a paper on the "Insects of the Season in Michigan," in which he called attention to a considerable number of species that had been unusually troublesome, and among others the climbing cut worms, which have been especially hard to deal with in certain orchards. The application of the poisoned bran mixture at the base of the trees had been on the whole the most successful, and he had found, by direct experiment, that the addition of sugar to the bran and Paris green did not increase its attractiveness. He also described the injuries done by species of *Monarthrum* on peach trees, and described the curious appearance of the roots of the infested trees. On this point there was some discussion as to whether the attacks by the beetles were really the primary causes of the injury, and it was questioned whether the attacks in the trunk would produce the abnormal appearance in the roots. Mr. Smith suggested very pointedly that the injury to the roots might easily have been primary and the attacks of the Scolytid the secondary consequence. A paper on "The study of Forest Tree Insects" was presented by Mr. Hopkins, and read in his absence. It is the same paper that was presented before the Association of Agricultural Colleges and Experiment Stations, to which reference has been made in a previous number of this journal, and was interesting from the estimate of the money value of the injury done each year by insects—a question upon which some difference of opinion was expressed.

A paper from Mr. F. H. Chittenden, on the "Herbivorous habits of certain Dermestidæ" contained an interesting record of observed food habits of many of our species, showing that the generally accepted statements concerning their food must be considerably qualified. In the discussion a number of confirmatory facts were brought out and a readiness to accept Mr. Chittenden's conclusions was manifested, largely based upon the personal experience of members. Incidentally, the methods to be adopted in the case of the imported carpet beetle, *Anthrenus scrophulariæ* were discussed, and Dr. Lintner protested vigorously against any use of the term "Buffalo moth" even in a popular reference to this insect.

Mr. Webster presented a paper on "Some Interesting Facts Regarding the Genus Diabrotica," in which he traced, rather carefully, the distribution of the various species in the United States, their relationship to each

other, their probable original home and the points at which the species seems to have diverged. A second paper presented by him was read on "The Importation and Repression of Destructive Insects," and in this he criticised rather severely the lax methods adopted in dealing with insects introduced into this country and the dangers resulting from them. He made a number of important practical suggestions as to methods of dealing with such pests, and there was some discussion of this paper which would have been much more full, but for the unfortunate flight of time, the remainder of the session being taken up by another paper by Mr. Webster on "Insects of the Year in Ohio."

The election of officers followed, and resulted as follows:

President, Prof. C. H. FERNALD, Amherst, Mass.
1st Vice-President, Prof. HERBERT OSBORN, Ames, Iowa.
2d " Prof. F. M. WEBSTER, Wooster, Ohio.
Secretary, Mr. C. L. MARLATT, Washington, D. C.

It was resolved that the next meeting be held, as usual, with that of the American Association for the Advancement of Science, which will be held at Buffalo, N. Y, beginning on August 24th. It was also resolved that the Secretary of Agriculture be requested to print the Proceedings of this meeting as a special Bulletin of the Entomological Division of the Department.

Those entomologists who desire to obtain this Bulletin should send their names and a request for the Bulletin, when issued, to Mr. L. O. Howard, Entomologist, U. S. Dep't of Agriculture, Washington, D. C.

The meeting of the Entomological Division of the Association of Agricultural Colleges and Experiment Stations at Denver, during July, 1895, was not very numerously attended, Prof. Perkins, of Vermont, Prof. Atkinson, of New York, and Prof. Smith, of New Jersey, being the only eastern members present. Messrs. Bruner, Cockerell, Gillette, Hillman and Toumey represented the far west, leaving the central States without delegates. The meetings were somewhat informal, yet of considerable interest, and a number of papers from members not in attendance were read. The decidedly interesting fact was developed during the discussions that it is unsafe for western entomologists to repeat the recommendations made by their eastern colleagues without having first tested them. Climate, or some other factor, seems to exercise an influence so potent in some cases as to make a remedy, which is quite effective on the Atlantic, almost useless on the Pacific. Thus, Mr. Slingerland, in a careful study of the Pear-blister mite, found kerosene in quite a diluted emulsion a satisfactory remedy applied at a proper time. Mr. Aldrich, in Idaho, found it entirely useless, applied as recommended, and indeed found it difficult to kill the insects at all with the emulsion. In the interchange of experiences it seemed to be quite certain that kerosene in the far West is not nearly as useful as in the East. Of course, this opens up again the question of the effectiveness of certain poisonous substances and makes it necessary to duplicate experiments for different sections in future.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

Mrs. A. T. SLOSSON will probably have lots to tell us about the season's work at the Northern Hills, Franconia, N. H.

Mrs. F. O. HERRING divided the Summer between Gloucester, Mass., and the woods of Maine. No doubt many fine things will grace her cabinet as a result.

FIVE species of *Grapta* are found at King and Bartlett Lake in Somerset County, Maine. They are *J-album*, *faunus*, *progne*, *gracilis* and *comma*.—H. S.

Mr. WM. J. FOX, of the Academy of Natural Sciences of Philadelphia, spent two weeks collecting at Burning Springs, Wirt County, West Virginia, during July.

THE Neumoegen collection of Lepidoptera is to be placed on exhibition in the Brooklyn Institute. The collection is for sale. We believe it is to be on view October 1st.

THE interesting trip to the West made by Mr. W. H. Edwards and Mr. David Bruce was productive of most interesting scientific results, and they are to be congratulated.

Mr. PHILIP LAURENT, of Philadelphia, spent two weeks in collecting at King and Barlett Lake, Somerset County, Maine. Mrs. William Wagner, an enthusiastic lady entomologist from New York, was also enjoying life at the same camp in the woods.

Mr. G. D. HAVILAND, who is engaged in working at Termites, is desirous of examining specimens of *Termopsis*, and will be very much obliged to any one who will send him specimens of that genus, especially of the winged forms. Spirit specimens preferred. Address: G. D. Haviland, University Museum of Zoology, Cambridge, England.

THE COCCID GENUS BERGROTHIA Kraatz.—I have just learned from Mr. Bergroth that the name of this genus is pre-occupied in Coleoptera

by Reitter. It has all along been questionable whether the genus was a valid one; and for the present I do not care to propose a substitute, but will refer the species hitherto placed under it to *Dactylopius*.—T. D. A. COCKERELL.

FOLLOWING A MISTAKE.—In Dr. Uhler's list of Heteroptera by some mistake, I suppose, the family Berytidæ is placed before the section Rhopalina, of the family Coreidæ. Various lists of Heteroptera lately published follow blindly this mistake. It reflects but little credit on American entomology that authors should betray ignorance both of the literature of the subject and of the insects themselves. For the use of the word "Rhopalina," a knowledge of the insects, or a glance at some of Dr. Uhler's later papers ought to arouse a suspicion that there was something wrong in placing *Harmostes* in the Berytidæ.

THE "FOURTH" AT JAMESBURG, N. J.—For the fourth time the entomologists of Philadelphia, Newark, Brooklyn and New York united in fraternal intercourse at Jamesburg, N. J., on Independence Day. On arriving in Jamesburg the party was driven to the grounds "a la buckboard" and soon a "still hunt" after specimens of the various orders was in operation. But alas! whether due to the fact that umbrellas were in a minority, or to the detonation of a huge bomb, set off by Schmitz and imported by him from China at a large expense, and which Dr. Skinner assured the crowd was a fake, and would make no more noise than the ordinary shooter sold at five cents per hundred, rain set in shortly after the arrival. Fortunately, for a large number of the party, coleopterists with their always-present umbrellas were out in force, and fortunately for the beetles these were soon used for other purposes than that for which they were chiefly brought. Coleopterists show much foresight in choosing extra large umbrellas.

Thanks to Mr. Conerty, the man who kindly looks after our wants on the occasion, and the rest of the time raises cranberries by the bogful, the party was housed in the large sorting room attached to his barn and but a short time was required to forget the rain and to dispel any vindictive wrath that may have been harbored against the deceptive weather prophet who, on the day preceding, had suavely prophesied that "the day we celebrate will be an ideal day."

Matters were enlivened by a banjo, skillfully played by Mr. Weidt, and then followed several hours of song and general merriment in which all participated uninterruptedly, save when a luckless moth, disturbed by the merrymakers, attempted to escape by flying against the windows, which of course sent several Lepidopterists chasing after it, or when a visit was made to the "Quelle" for refreshment.

Historian J. B. Smith read a review of the previous meetings, which was replete with witticisms and indicated his ability to deal with historical subjects as skillfully as with the characters of Noctuidæ and Lachnosterna. Later, a discussion on sugaring took the excursionist's attention, and was participated in by essrs. Ottolengui, J. Johnson and others.

Messrs. Herpers, Laurent and H. Wenzel, made addresses. Mr. Wenzel's talk was brief, but to the point.

It was unanimously decided, after discussion, to hold the next outing in the Orange Mountains, in the northern part of New Jersey, and, out of justice to the Philadelphia collectors, to hold it in the vicinity of that city in 1897.

The party included the following persons: Philadelphia—Hoyer, Boerner, Seiss, H. Griffith, S. Griffith, Liebeck, Trescher, Schmitz, C. Johnson, J. Johnson, W. Johnson, Castle, Rodd, Laurent, Fox, H. Wenzel, H. Wenzel, Jr., E. Wenzel, Nell, Skinner, Reinicke. Newark—Stortz, Bischoff, Herpers, Weidt, Brehm, Seib. Brooklyn—Smith, Roberts, Meeske, Sherman, Reinoldt. New York—Ottolengui. Reading—Mengel. Wilmington—Jones. F.

UNCLE JOTHAM'S BOARDER.

ANNIE TRUMBULL SLOSSON.

I've kep' summer boarders for years and allowed
  I knowed all the sorts that there be;
But there come an old feller this season along,
  That turned out a beater for me.
Whatever that feller was arter, I vow
  I hain't got the slightest idee.

He had an old bait net of thin, rotten stuff
  That a minner could bite his way through;
But he never went fishin', at least in the way
  That fishermen gen'ally do;
But he carried that bait net wherever he went,
  The handle was j'inted in two.

And the bottles and boxes that chap fetched along!
  Why, a doctor would never want more;
If they held pills and physic he'd got full enough
  To fit out a medicine store.
And he'd got heaps of pins, dreffle lengthy and slim,
  Allers droppin' about on the floor.

Well, true as I live, that old feller jest spent
  His hull days in loafin' about
And pickin' up hoppers and roaches and flies,
  Not to use for his bait to ketch trout,
But to kill and stick pins in and squint at and all;
  He was crazy 's a coot, th'ain't no doubt.

He'd see a poor miller a flyin' along—
  The commonest, every-day kind—
And he'd waddle on arter it, fat as he was,
  And foller up softly ahind,
Till he'd flop that air bait net right over its head,
  And I'd laugh till nigh out of my mind.

Why, he'd lay on the ground for an hour at a stretch
And scratch in the dirt like a hen;
He'd scrape all the bark off the bushes and trees,
And turn the stones over, and then
He'd peek under logs, or he'd pry into holes;
I'm glad ther' ain't no more sech men!

My wife see a box in his bed-room, one day,
Jest swarmin' with live caterpillars,
He fed 'em on leaves off of all kind of trees,
The ellums and birches and willers;
And he'd got piles of boxes chock full to the top
With crickets and bees and moth millers.

I asked him, one time, what his business might be,
Of course I fust made some apology—
He tried to explain, but sech awful big words!
Sort o' forren, outlandish and collegey,
'S near 's I can tell, 'stead of enterin' a trade,
He was tryin' to jest enter *mology*.

And Hannah, my wife, says she's heerd o' sech things;
She guesses his brain warn't so meller;
There's a thing they call Nat'ral Histerry, she says,
And, whatever the folks there may tell her,
Till it's settled she's wrong she'll jest hold that air man
Was a Nat'ral Histerrical feller.

THE MARX COLLECTION OF ARACHNIDA.—The eminent arachnologist, Dr. George Marx, of Washington, D. C., died Jan. 3, 1895. His important collection of Arachnida has been placed by his widow in charge of the undersigned committee of the Entomological Society of Washington, to be disposed of by sale. The collection is one of the most important in existence. It contains more than one thousand species of Aranæina alone. Of this one thousand species, about five hundred are described species from North America. These are described among 175 genera. The families Theridiidæ, Epeiridæ and Theraphosidæ are particularly well represented, and have been identified largely by some well-known authority. The Theridiidæ were in the hands of the late Count Keyserling, and about thirty of his species have their types in this collection. The Theraphosidæ have been recently in the hands of Simon, of Paris, while Dr. McCook has examined the Epeiridæ. In addition to these 500 described American species there are about 200 species of European spiders properly identified and labeled, and nearly 300 American species which bear Dr. Marx's manuscript names. There is further a great mass of material which has never been worked up.

The species are, many of them, represented by many specimens. The collection is contained in vials in Muller's fluid, and the vials are arranged

in the standard trays of Dr. Marx's own invention as figured and described in Riley's "Directions for Collecting and Preserving Insects" (Smithsonian Institution, Part F, Bulletin 39, U. S. National Museum). The collection is of special interest, aside from the number of species, on account of the excellent representation of the boreal fauna. There are many specimens from Alaska on the west and Labrador on the east. In addition, all parts of America, north of Mexico, are represented. Besides the Aranæina there are many specimens of *Scorpionida*, *Solpugida* and *Pseudoscorpionida* and *Pedipalpi*.

After due consideration of the fact that the funds of most public institutions are deficient, and that it is never possible to secure for a collection of this kind an amount which is at all commensurate with the labor expended upon it, we have decided to offer, for the present, this collection for sale for the sum of fifteen hundred dollars ($1500).

Correspondence relative to the collection or its possible purchase may be addressed to any member of the committee:

C. V. RILEY (deceased), U. S. National Museum.
L. O. HOWARD, U. S. Department of Agriculture.
E. A. SCHWARZ, U. S. Department of Agriculture.
THEODORE GILL, Smithsonian Institution.

P. S.—With the collection will be delivered to the purchaser Dr. Marx's large and valuable library on Arachnida, comprising all the important works on the group, well bound, together with several hundred pamphlets.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. NATURGESCHICHTE DER INSEKTEN DEUTSCHLANDS, Erichson. Berlin, Erste Abtheilung, Band v.—Coleoptera, G. Seidlitz.

2. ENTOMOLOGISKE MEDDELELSER, KJOBENHAVN, v, 1, 2.—*Rheumatobates bergrothi* n. sp., F. Meinert.

3. ZEITSCHRIFT FUR PFLANZENKRANKHEITEN. Stuttgart, v, 3.—On insect enemies of *Pinus silvestris* and *P. austriaca*, K. Sajo.

4. NOVITATES ZOOLOGICÆ. London, vol. ii, 2.—Descriptions of new species of butterflies, G. Smith. New species and genera of Geometridæ in the Tring Museum, W. Warren. New species of Rhopalocera from the Solomon Islands, W. Rothschild.

5. OPUSCULA ENTOMOLOGICA, C. G. Thomson, Lund, fasc. xix.—Bidrag till kännedom om Tryphonider. Fasc. xx.—Bidrag till Braconidernas kännedom.

6. BIOLOGIA CENTRALI-AMERICANA, Zoology, pt. 122.—Arachnida-Araneidea, O. P. Cambridge. Coleoptera, parts by G. C. Champion and D. Sharp. Lepidoptera-Rhopalocera, F. D. Godman and O. Salvin. Lepidoptera-Heterocera, H. Druce. Rhynchota-Homoptera, W. W. Fowler.——pt. 123.—Coleoptera (iii, pt. 1, pp. 361–376, pls. 15, 16), G. C. Champion. Coleoptera (iv, pt. 6, pp. 33–48, pl. 2), D. Sharp. Hymenoptera (ii, pp. 361–368), P. Cameron. Lepidoptera Heterocera (ii, pp. 209–232, pl. 60), H. Druce. Rhyncota Homoptera (ii, pp. 81–88, pl. 6), W. W. Fowler.

7. PROCEEDINGS OF THE IOWA ACADEMY OF SCIENCES, 1894, vol. ii.—Insects, H. F. Wickham. Plant Lice infesting grass-roots, H. Osborn and F. A. Sirrine. Some bred parasitic Hymenoptera in the Iowa Agricultural College collection, A. M. Beach. Psyllidæ found at Ames, C. W. Mally.

8. VERHANDLUNGEN DER K. K. ZOOL.-BOT. GESELLSCHAFT IN WIEN, xlv, Heft 6.—Remarks on varieties of some butterflies natives of Bukowina, C. v. Hormuzaki.

9. JOURNAL TRINIDAD FIELD NATURALITS' CLUB, vol. ii, No. 7.—Notes on Trinidad butterflies, Lechmere Guppy, Jr.

10. PSYCHE, August, 1895.—Notes on the Winter insect fauna of Vigo County, Indiana, W. S. Blatchley. Habits and parasites of *Stigmus inordinatus* Fox, A. Davidson. Prickly leaf-gall of *Rhodites tumidus* on *Rosa fendleri*, C. H. T. Townsend. The Bombylid genus *Acreotrichus* in America, D. W. Coquillett. New North American Odonata, ii, A. P. Morse. Notes on moths, Caroline G. Soule. Proc. Cambridge Ent. Club—*Colias hecla*, *Lycæna xerces*.——September, 1895.—Notes on the Winter insect fauna of Vigo County, Indiana, iii, W. S. Blatchley. Some habits of *Formica obscuripes* Forel, with notes on some insects found associated with it, G. B. King. New North American bees, T. D. A. Cockerell. A Mutillid which resembles thistle-down, ibid. New species of Coccidæ, ibid.

11. ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION, vol. vi, No. 12.—The Hadenoid genera with hairy eyes, A. R. Grote.

12. PROCEEDINGS CALIFORNIA ACADEMY OF SCIENCES, ser. ii, voi. v.—Third Report on some Mexican Hymenoptera, principally from Lower California, W. J. Fox.

13. TRANSACTIONS AMERICAN ENTOMOLOGICAL SOCIETY, vol. xxii, No. 2.—Studies in Coccinellidæ, George H. Horn, M.D. Notes on bees, with descriptions of new species, Charles Robertson. The Crabroninæ of Boreal America, W. J. Fox.

14. THE ENTOMOLOGIST, vol. xxviii, No. 387.—Notes on the synonymy of Noctuid moths, A. G. Butler.

15. THE CANADIAN ENTOMOLOGIST, vol. xxvii, No. 8.—Occupants of the galls of *Eurosta solidaginis* Fitch, W. H. Harrington. New North American Mycetophilidæ, D. W. Coquillett. On the subglobular species of *Lecanium*, T. D. A. Cockerell. On the cabbage-shaped gall of *Cecidomyia*, *Salicis brassicoides* and its occupants, C. H. T. Townsend. Descriptions of the larvæ of certain Tenthredinidæ, H. G. Dyar. The Coleoptera of Canada, H. F. Wickham. List of Coleoptera collected at Massett, Queen Charlotte Islands, B. C. Preliminary studies in Siphonoptera, Carl F. Baker. The generic types included in Apatila, A. R. Grote. Notes on butterflies, F. H. Sprague. Melsheimer's sack-bearer, J. A. Moffat.——xxvii, No. 9.—Notes on collecting butterflies in western Colorado, with a particular account of certain Papilios, W. H. Edwards. Notes of some southern Lepidoptera, H. G. Dyar. The Coleoptera of Canada, xiii, H. F. Wickham. Miscellaneous notes on Coccidæ, T. D. A. Cockerell. The Boreal American species of Pamphila, H. Skinner. Notes upon the North American Saturnina, with list of the species.

16. AMERICAN NATURALIST, vol. xxix, No. 344.—Contributions to Coccidology, i, T. D. A. Cockerell. A new Tettix, J. L. Hancock. On the early stages of some Carabidæ and Chrysomelidæ, H. F. Wickham. *Cecidomyia atriplesis*, T. D. A. Cockerell. Mexican jumping beans, F. L. Harvey.

17. THE ENTOMOLOGIST. London, August, 1895.—Variety, form, race and aberration, W. Mansbridge. A revised classification of the genus *Ateuchus* (Weber), J. W. Shipp. Notes on the synonymy of Noctuid moths (cont.), A. G. Butler.——September, 1895.—Varietal terminology, W. F. deV. Kane. The senses of insects, J. Arkle. On the origin of the European Rhopalocera, and the effects produced by the glacial period upon their present distribution and diversity, W. H. Bath.

18. TRANSACTIONS OF THE CONNECTICUT ACADEMY OF ARTS AND SCIENCES, vol. ix, pt. 2.—Canadian spiders, J. H. Emerton.

19. ANNALS AND MAGAZINE OF NATURAL HISTORY, No. 92.—Notes on some genera and species of Coccidæ, W. M. Maskell. Description of two new spiders obtained by Messrs. J. J. Quelch and F. McConnell on the summit of Mount Roraima, in Demerara, with a note upon the systematic position of the genus *Desus*, R. I. Pocock. Further notes on *Cutiterebra:* on the identity of certain species described by the late Bracy Clarke, E. E. Austen. Descriptions of new Coleoptera in the

British Museum, C. C. Waterhouse. Description of new genera and species of Trap-door spiders belonging to the group Trionychi, R. I. Pocock.

20. MEMOIRES DE L'ACADEMIE IMPERIALE DES SCIENCES DE ST. PETERSBURG, viie série, T. xlii, 11.—Industry of the Araneina, W. Wagner.

21. TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xxii, [extract].—A review of the Stratiomyia and Odontomyia of N. America, C. W. Johnson.

22. JOURNAL OF THE LINNEAN SOCIETY, Zoology, No. 158.—On the morphology of the *Pedipalpi*, M. Laurie.

23. BULLETIN DE LA SOCIETE PHILOMATHIQUE DE PARIS, T. vii, No. 1.—Salivary glands of the Apinæ (*Apis mellifica* ♀ and ♂), L. Bordas.

24. LE NATURALISTE CANADIEN, xxii, No. 7.—The last descriptions of the Abbé Provancher (cont.).

25. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1895, pp. 303-340 [extract].—Diptera of Florida, C. W. Johnson, with additional descriptions of new genera and species, D. W. Coquillett.

26. THE ELEMENTS OF INSECT ANATOMY, H. Comstock and V. L. Kellogg—Comstock Publishing Co., Ithaca, N. Y., 1895.

27. INSECT LIFE, vii, 5.—Experiments with Winter washes against the San José scale, season of 1894-95, C. L. Marlatt. The *Hippelates* plague in Florida, E. A. Schwarz. The beet-leaf *Pegomyia*, L. O. Howard. Two Dipterous leaf-miners on garden vegetables, D. W. Coquillett. Some Coleopterous enemies of the grape-vine, F. H. Chittenden. The currant stem-girdler, C. L. Marlatt. Observations on certain Thripidæ, Th. Pergande. An imported library pest, E. A. Schwarz. Two Dipterous insects injurious to cultivated flowers, D. W. Coquillett. An injurious parasite, L. O. Howard. The horse-radish flea-beetle, F. H. Chittenden. A new wheat pest, D. W. Coquillett. Notes on Paris-green, C. L. Marlatt. Some changes in nomenclature, F. H. C. A new furniture pest, E. A. S. The home of the chinch bug, E. A. S. How Hemiptera feed, C. L. Marlatt.

28. ANNALES DES SCIENCES NATURELLES, ZOOLOGIE, T. xx, Nos. 1, 2, 3.—Male genital apparatus of the Hymenoptera, L. Bordas.

29. AMERICAN NATURALIST. Philadelphia, September, 1895.—A new classification of the Lepidoptera (cont.), A. S. Packard. Chordeumidæ or Craspedosomatidæ?, O. F. Cook. On the generic names *Strigamia*, *Linotænia* and *Scolioplanes*, O. F. Cook. *Picobia villosa* (Hancock), J. L. Hancock.

30. NATURE. London, No. 1347.—On the origin of European and North American ants, C. Emery.

31. ZOOLOGISCHE JAHRBUCHER (Abtheilung für Systematik, Geographie und Biologie), Jena, viii, Bd. H. 4.—Contribution to the knowledge of the ground spiders (Araneæ Citrigrade Thor.) of Russia, P. Schmidt, ibid. (Abtheilung für Anatomie und Ontogenie der Thiere). Contribution to the knowledge of the finer contexture and the phylogeny of the covering of the wings of the Lepidoptera, A. Spuler.

32. TRANSACTIONS OF THE ROYAL SOCIETY OF SOUTH AUSTRALIA, xix, 1.—New, or little-known Orthoptera from Lake Callabora, J. G. O. Tepper. Descriptions of new genera and species of Australian Coleoptera (xvii), T. Blackburn.

33. ARIZONA AGRICULTURAL EXPERIMENT STATION. Tucson, Bulletin No. 14.—Notes on scale insects in Arizona, J. W. Toumey. New scale insects from Arizona, T. D. A. Cockerell.

34. PROCEEDINGS AND TRANSACTIONS OF THE ROYAL SOCIETY OF CANADA, xii.—The fossil cockroaches of North America, S. H. Scudder.

35. JOURNAL OF THE TRINIDAD FIELD NATURALISTS' CLUB, ii, No. 8. —A new scale insect from Grenada, T. D. A. Cockerell. A new mealy bug on sugar-cane, ibid. The effect produced by ticks upon their hosts, C. A. Barber.——ii, No. 9.—New Trinidad spiders of the family Attidæ, G. W. and E. G. Peckham. Description of a new *Lecanium* from Trinidad, T. D. A. Cockerell. Description of a new species of *Telenomus*, bred by Mr. E. W. Urich, from a Coccid, W. H. Ashmead. Notes on scale insects, i, F. W. Urich.

36. TRANSACTIONS AND PROCEEDINGS OF THE NEW ZEALAND INSTITUTE, xxvii.—Synoptical list of the Coccidæ reported from Australia and the Pacific islands up to December, 1894, W. H. Maskell.

37. LEPIDOPTERA INDICA, F. Moore, London, pts. 21, 22.

38. NOVITATES ZOOLOGICÆ. London, vol. ii, No. 3.—A revision of the Papilios of the Eastern Hemisphere exclusive of Africa, W. Rothschild.

39. TECHNICAL SERIES of the Division of Entomology, U. S. Department of Entomology, No. 1.—Revision of the Aphelinæ of N. America, L. O. Howard.

40. ANNALEN DES K. K. NATURHISTORISCHEN HOFMUSEUMS. Wien, x, 1.—Additions to the monograph of the natural genus *Sphex* Linné, F. F. Kohl.

41. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxix, pt. 7.—Notes and descriptions of new ants, C. Emery.

42. ENTOMOLOGISCHE NACHRICHTEN, xxi, 17, 18.—Some new west African Heteroptera of the two groups Pentatomidæ and Coreidæ, F. Karsch.

[Through inadvertence the articles in Proc. Ent. Soc. Washington, iii, 4, "List of the Entomological Writings of Dr. Geo. Marx" and "Notes on Nomaretus," were credited to C. V. Riley in the last issue of the NEWS. The author is E. A. Schwarz.]

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Doings of Societies.

JUNE 11, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 South Thirteenth Street. Members present: Messrs. Bland, H. Wenzel, Dr. Castle, Hoyer, E. Wenzel, Haimbach, Trescher, Fox, Boerner, Schmitz and Laurent. Honorary members: Drs. Geo. H. Horn, Henry Skinner and J. B. Smith. Visitor: Mr. C. F. Seiss. Prof. Smith remarked that the larvæ he had exhibited about a year ago, which was doing so much damage among the young oak trees in Ocean County, N. J., was, without doubt, *Goes tesselata*, as he had taken the perfect imago from its burrow, less than a week ago. The larvæ make a burrow about six inches in length in the centre of young oak sprouts, ranging in age from ten to fifteen years and from one and a half to two inches in diameter. Mr. H. W. Wenzel replied that he had found *Goes tesselata* on just such trees, the year before in Atlantic County, N. J., on July 3rd and 10th. Mr. Wenzel also exhibited specimens of *Cychrus viduus* taken in the upper part of New Jersey. Mr. Laurent reported taking *Corymbites hamatus* May 17th, at Manayunk, Philadelphia, and *Pomphopœa ænea* May 19th, at Mount Airy, Philadelphia. Mr. Boerner exhibited the following specimens of Coleoptera: *Helluomorpha nigripennis*, taken at Atco N. J., on July 2nd; *Chlænius niger*, from the lower part of Philadelphia, at electric lights, on May 31st, and *Centrodera picta*, May 19th, in Bucks County, Pa.

No further business being presented, the members adjourned to the annex, where Prof. Smith had prepared for them an excellent collation, to which ample justice was done, followed by toasts and good wishes.

THEO. H. SCHMITZ, *Secretary*.

SEPTEMBER 10, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 South Thirteenth Street. Members present: Drs. Castle and Griffith, Messrs. Boerner, H. W. Wenzel, Laurent, Fox, Trescher, Johnson, E. Wenzel, Hoyer and Schmitz. Honorary members: Prof. J. B. Smith and Dr. Henry Skinner. Visitor: Mr. James Stewart, Philadelphia. Meeting called to order at 8.45 P.M., Vice-President Castle presiding. An interesting paper was read

by Mr. Laurent, recounting the recent collecting trip made by Dr. Skinner and himself through the upper part of Maine. He exhibited their collection, comprising Coleoptera, Lepidoptera, Diptera and Hymenoptera. Dr. Griffiith also read an interesting paper describing a trip made by Mr. Johnson and himself through North Carolina in last June; although devoting their time principally to the collection of fossils, they still managed to gather quite a variety of Coleoptera, Diptera and Lepidoptera, which were exhibited. Prof. Smith showed a photo-engraving of the work done by *Scolytus 4-spinosus*, the engraving was full size and was about the most perfect ever seen; he further stated that he had bred *Oeme rigida* from red cedar; also a species of *Scolytus* which he failed to identify. Each member was presented with a copy of Prof. Smith's annual report. Mr. H. W. Wenzel mentioned that *Lucanus elaphus* and *Scarites substriatus* had been found at Anglesea, N. J., during the Summer. Mr. Fox proposed Mr. C. Few Seiss for membership in the Social. Vice-President Castle presented a vote of thanks to Prof. Smith on behalf of the Social for the bounteous collation he had furnished at the close of the June meeting.

No further business being presented, the meeting adjourned to the annex.

THEO. H. SCHMITZ, *Secretary*.

OBITUARY.

Dr. ADOLF GERSTAECKER, Professor of Zoology in the University of Greifswald, died on July 20th, last.

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